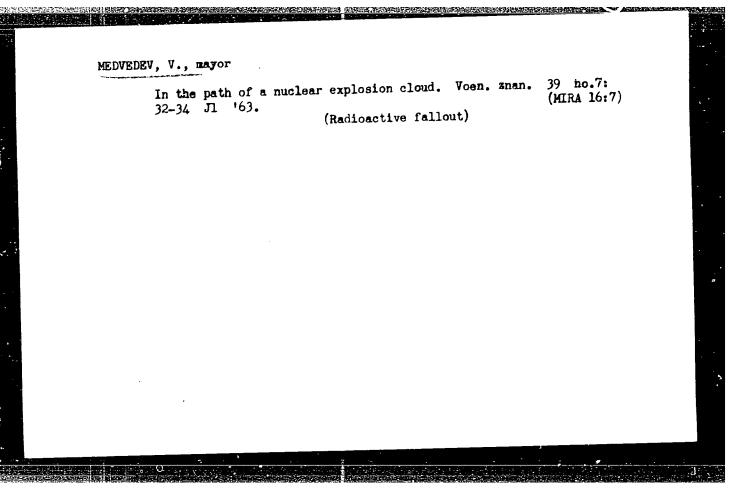ZUBKIN, Aleksandr Stepanovich; MEDVEDEV, Valentin Alekseyevich; KANEVSKAYA,
M.D., red.; KOROLEV, A.V., tekhn. red.

[Radioactive cloud and protection against it] Radioaktivnoe oblako i
zashchita ot nego. Moskva, Izd-vo DOSAAF, 1961.   65 p.
(MIRA 14:8)

(Radioactive fallout)

MEDVEDEV, V., mayor

In the path of a nuclear explosion cloud. Voen. znan. 39 no.7:
32-34 Jl '63.   (MIRA 16:7)
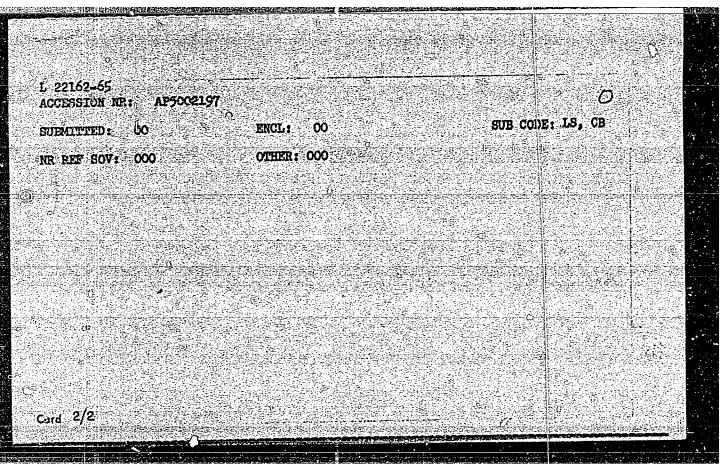
(Radioactive fallout)

MEDVEDEV, Valentin Alekseyevich; GODINER, F.Ye., red.; SORKIN, M.Z.,
tekhn. red.

[Protective measures in areas of radioactive contamination]
Mery zashchity v zonakh radioaktivnogo zarazheniia. Moskva,
Izd-vo DOSAAF, 1964. 29 p.   (MIRA 17:3)

L 22162-65 EWT(m)/EWA(h) AFWL/SSD/BSD/ASDA-5/AFETR/Fu-4

ACCESSION NR: AP5002197   S/0017/64/000/012/0028/0029

AUTHOR: Medvedev, V.

TITLE: Measuring ionizing radiation

SOURCE: Voyennyye znaniya, no. 12, 1964, 28-29

TOPIC TAGS: radiation effect, ionizing radiation, biological contamination, radiation measurement

ABSTRACT: This is an elementary article describing briefly the effect of ionization on human tissue and the development of the radiation damage with time. External and internal types of irradiation are described, and the concept of radiation dose and its measurement unit is defined. Methods of measuring the radiation and various units employed in dosimetry are briefly defined. The use of both beta and gamma dosimetry is explained. Orig. art. has: 1 table

ASSOCIATION: None

Card 1/2

L 22162-65
ACCESSION NR: AP5002197

SUBMITTED: 00   ENCL: 00   SUB CODE: LS, CB

NR REF SOV: 000   OTHER: 000

Card 2/2

KARAPET'YANTS, Mikhail Khristoforovich; GERASIMOV, Ya.I., otv.
        red.; MEDVEDEV, V.A., red.

        [Methods for the comparative calculation of physicochemical
        properties] Metody sravnitel'nogo rascheta fiziko-
        khimicheskikh svoistv. Moskva, Nauka, 1965. 401 p.
                                            (MIRA 18:4)
        1. Chlen-korrespondent AN SSSR (for Gerasimov).

ACCESSION NR: AP4036711   8/0020/64/156/002/0258/0260

AUTHOR: Medvedev, V. A.

TITLE: On the convergence of projection methods in the problem of eigenvalue

SOURCE: AN SSSR. Doklady*, v. 156, no. 2, 1964, 258-260

TOPIC TAGS: convergence projection, eigenvalue, eigenvector, holomorphous function, Hilbert space, linear finite operator, eigensubspace, sub sequence, sequence

ABSTRACT: Let us assume that we have a linear bounded operator $L(\lambda)$, fixed in Hilbert space H_1 and a range of values H_2, whereby $L(\lambda)$ is a holomorphous function of parameter λ from some region D of a complex plane. For the equation

$$L(\lambda) \; x = 0 \tag{1}$$

it was necessary to find the eigenvector and the eigenvalue which were approximated by the equation

$$P_n L(\lambda) \; x_n = 0 \tag{2}$$

Card 1/2

ACCESSION NR: AP4036711

Through a series of mathematical arguments, it was concluded that any strongly converging sub-sequence of a sequence $\{x_n\}$ of an eigenvector equation converges to an eigenvector equation pertaining to the eigenvalue of λ_0, even if one such sub-sequence exists. The dimensional eigensubspace equation of the equation pertaining to the eigenvalue of λ_n, at a sufficiently large n, does not exceed the dimensional eigensubspace. As was shown, certain eigenvectors cannot be derived as a limit for a sequence approxiamting an eigenvector or its linear combination. Orig. art. has: 8 equations and 3 theorems.

ASSOCIATION: Nauchno-issledovatel'skiy institut mekhaniki. Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosov (Scientific Research Institute of Mechanics, Moscow State University)

SUBMITTED: 19Dec63   DATE ACQ: 03Jun64   ENCL: 00

SUB CODE: MA   NO REF SOV: 003   OTHER: 000

Card 2/2

SOV/76-32-7-43/45

AUTHOR: Medvedev, V. A.

TITLE: A Method for the Calculation of the Results of Effusion Ex-
            periments in Case of a Dissociation of the Vaporization Products
            (Metod rascheta effuzionnykh opytov v sluchaye dissotsiatsii
            produktov ispareniya)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 7,
            pp 1690 - 1691 (USSR)

ABSTRACT: The effusion measurements are one of the basic possibilities
            for the determination of the pressure of saturated vapors and
            of the heats of sublimation. As in certain cases, however,
            besides the actual vaporization products also dissociation
            products occur, and thus the heats of sublimation are changed,
            the dissociation heats may be calculated from the effusion
            measurements when the influence exerted by dissociation is
            sufficiently great. The author gives a calculation scheme
            according to which the data obtained by Brewer and Searcy (Ref
            2) are calculated; he found that besides the vaporization
            products AlO and O mentioned by those authors also considerable
            amounts of Al_2O_3 must be present. In the calculations carried

Card 1/2

A Method for the Calculation of the Results of   SOV/76-32-7-43/45
Effusion Experiments in Case of a Dissociation of the Vaporization Products

out the values given by L.V.Gurvich and I.V V~jts (Ref 3)
concerning the thermodynamical properties ~f aluminium compounds
are used. The results of the calculation obtained are given in
form of a table the values of the partial pressure of the mo-
lecular O_2 and Al_2O being omitted because of their small

magnitude. There are 1 table and 5 references, 2 of which are
Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut goryuchikh iskopayemykn, Minsk
                (Minsk, Institute of **Mineral Fuels**   , AS USSR)

SUBMITTED: January 3, 1958

                1. Gas ionization--Thermal effects   2. Vapor pressure--Determination
                3. Aluminum oxides--Heat of sublimation   4. Mathematics

Card 2/2

AUTHOR: Medvedev, V. A.   SOV/76-32-8-20/37

TITLE: An Investigation of the Thermodynamic Properties of Substances
                  According to the Me+hod of Explosion in a Spherical Bomb
                  (Issledovaniye termodinamicheskikh svoystv veshchestv metodom
                  vzryva v sfericheskoy bombe) I. The Method (I. Metod)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 8, pp. 1851-1858
                  (USSR)

ABSTRACT: The theory of an incomplete spherical combustion advocated by
                  David et al. (Refs 10, 11), as well as by Flock (Fiok) et al.
                  (Refs 12, 13) is disproved by Lewis and Elbe (L'yuis and El'be)
                  (Refs 1, 7, 8) and especially convincingly by D. G. Nikitin
                  (Ref 9). The maximum pressures which in the calculation were
                  smaller than in the experiment carried out by Lewis and Elbe
                  as well as by Wohl and Magat (Vol' and Magat) (Ref 15) lead to
                  the assumption that a hampering of the excitation of the
                  oscillation heat capacity takes place in the explosion in the
                  spherical bomb. Similar observations were also made by Lewis
                  and Elbe (Ref 1), in the calculations of the experiments carried
                  out by David and Leach (Devid and Li) (Ref 16), as well as by
Card 1/3   Pier (Pir) (Ref 17). In the present paper the author found that

SOV/76-32-8-20/37

An Investigation of the Thermodynamic Properties of Substances According to the Method of Explosion in a Spherioal Bomb

in those oalculations too small a value was taken for the dis-
sooiation heat of steam, and that on the other hand no de-
orease of the oscillation heat capacity as compared to its
equilibrium value can be found. The amounts of the heat loss
were determined and it was found that the deviations from the
experimental data mentioned above may be explained by the heat
losses. A table of the pressure oorrections according to Lewis
and Elbe as well as Femming and Whiffin (Fimming and Viffin)
(Ref 2) in the calculations of the explosions is given. The
mean heat capacities of steam and hydrogen vapor were cal-
culated according to the maximum explosion pressures (de-
termined according to Pier and Wohl and Magat). The papers by
A. I. Rozlcvskiy and Yu. Kh. Shaulcv (Ref 21) and A. M. Gurvich
and Yu. Kh. Shaulov (Ref 4) were mentioned in connection with
the calculation methods. Some data were taken from the
spravochnik Byurc standartov ChA (Handbook of the Bureau of
Standards, USA). There are 4 tables and 39 references, 8 of
which are Soviet.

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SOV/76-32-8-20/37

An Investigation of the Thermodynamic Properties of Substances According to the Method of Explosion in a Spherical Bomb

ASSOCIATION: Akademiya nauk SSSR,Institut goryuchikh iskopayemykh Moskva
(AS USSR,Institute of Mineral Fuels, Moscow)

Card 3/3

5(4)   SOV/76-33-1-10/45
AUTHORS: Medvedev, V. A., Korobov, V. V., Baybuz, V. F. (Moscow)

TITLE: Investigation of the Thermodynamic Properties of Substances
                According to the Method of the Explosion in a Spherical Bomb
                (Issledovaniye termodinamicheskikh svoystv veshchestv metodom
                vzryva v sfericheskoy bombe) II. Hydroxyl (II. Gidroksil)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 1, pp 58-64 (USSR)

ABSTRACT: In the investigation under review a spherical bomb with a
                capacity of 20 l was used. An optical instrument (Fig 1) based
                on a design proposed by L'yuis and El'be (Ref 1) served as
                pressure indicator. The changes in pressure were recorded by
                an oscillograph of the type 9S0-302 and the recordings measured
                by means of a measurement microscope MIR-12. Publications de-
                scribed various methods for the determination of the dissoci-
                ation heat of water vapor on hydrogen- and hydroxyl ions, and
                the different results which were obtained (Table 1). So far
                $\Delta H = 67 \pm 0.65$ kcal/mol (Dweyr (Dvayyer) and Oldenberg (Ref 16))
                has been regarded as the most accurate value. However, the
                spectrographical determinations of A. P. Purmal' (Ref 17)
Card 1/3   which resulted in a value of 64.4 ± 1.0 kcal/mol seem to be

Investigation of the Thermodynamic Properties of Substances According to the
Method of the Explosion in a Spherical Bomb. II. Hydroxyl

more accurate. It is stated that the investigations carried
out by Wohl (Vol), Magat (Ref 11), Lewis and Elbe (L'yuis and
El'be) (Ref 14) furnished too low results, in reference 11 on
account of wrong calculations, and in reference 14 on account
of heat losses. In the present determinations according to the
explosion method, an oxygen-hydrogen mixture with a surplus
of oxygen and an addition of water vapor was used, since heat
losses occurring with the combustion of these mixtures are
smaller. 21 explosion experiments were carried out. The cal-
culation method has already been given (Ref 19). The mean
value obtained for the reaction $H_2O_{gas} \rightleftarrows OH_{gas} + 1/2\ H_{2\ gas}$
is $\Delta H_0^O = 65.5$ kcal/mol in accordance with the dissociation
energy of the hydroxyl of $D_o(OH) = 102.2$ kcal/mol. The equilib-
rium constants K_p were calculated for various temperatures
(Table 4). There are 2 figures, 4 tables, and 22 references,
5 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut goryuchikh iskopayemykh (Academy
                of Sciences, USSR, Institute for   Mineral Fuels)

Card 2/3

83639

5.2400
24.5300

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 15, p. 52, # 60489

AUTHORS: Bergman, G.A., Medvedev, V.A.

TITLE: Investigation of the Thermodynamic Properties of Silicon Oxide Vapors and of Their Condensation Processes by Explosion in a Spheric Bomb

PERIODICAL: Sb. tr. Gos. in-ta prikl. khimii, 1959, No. 42, pp. 158 - 172

TEXT: The explosion method (RZhKhim, 1959, No. 6, # 18424) is used to investigate vapors of low-volatile substances. Heat losses δE (in cal per 100 moles of the initial mixture) are determined in a series of explosions of H_2 (10%) with O_2 (from 10 to 25%) mixtures with excess of CO. $\delta E = C \mathcal{T} Tm$, where $\mathcal{T}$ is the duration and Tm is the temperature of explosion; the empiric constant $C = 3.5 \cdot 10^{-10}$ ($\mathcal{T} = 0.01 - 0.03$ sec, Tm = 2300 - 3300°K). Measurements with the aid of an intertialess bolometer showed an increase in δE at the explosion of mixtures entailing the formation of the substance in condensed state (C = 4.5 $\cdot 10^{-10}$). A critical analysis is made of the literature on thermodynamical properties of SiO and SiO_2 and calculations are made of the potential - F* and
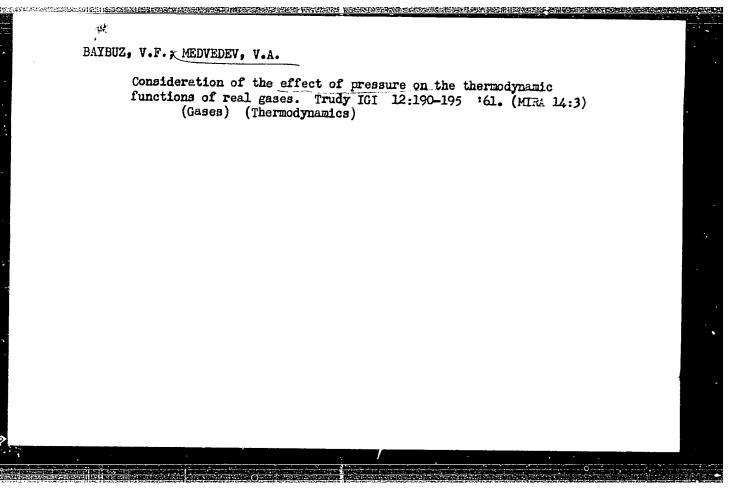
Card 1/2

83639

S/081/60/000/015/005/014
A006/A001

Investigation of the Thermodynamic Properties of Silicon Oxide Vapors and of Their Condensation Processes by Explosion in a Spheric Bomb

H_T - H_0 of SiO (gas), SiO_2 (gas) (1200-3200°K); SiO_2 (sol.) and SiO_2 (liquid) (up to 3000°K) and SiO (amorphous) (up to 2100°K). Four series of explosions were made with mixtures containing 1,2-disilylethane (the preparation is described); 1) with an excess of O_2; 2) with O_2 and an excess of H_2; 3) with CO and an excess of O_2; 4) with O_2 and an excess of CO. Calculations of series 1 and 2 have shown that when the maximum pressure has been attained equilibrium condensation of supersaturated SiO_2 and SiO vapors takes place, consequently the explosion method is applicable to the determination of sublimation heats ΔH_0^o (subl.). Calculations of series 3 and 4 yielded for SiO_2 ΔH_0^o (subl.) > 130 kcal/mole. It was determined from the series 2 that for SiO (amorphous) ΔH_0^o (subl.) = 86.5 kcal/mole.

G. Bergman

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

BAYBUZ, V.F. X MEDVEDEV, V.A.

Consideration of the effect of pressure on the thermodynamic functions of real gases. Trudy IGI 12:190-195 '61. (MIRA 14:3)
(Gases) (Thermodynamics)

15. 2620

26338
S/076/61/035/007/008/019
B127/B208

AUTHOR: Medvedev, V. A.

TITLE: Dissociation energy and sublimation heat of the oxides
              of alkaline earth metals

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 7, 1961, 1481-1488

TEXT: The author collected all experimental values for the criterions
mentioned in the title. He checked them, and using the second and third
theorem of thermodynamics calculated new correct values for the heat of
sublimation and the dissociation energy from experimental values given in
other scientific papers. Table 1 presents the values of the sublimation
heat of the metals and the formation heat of their oxides. The dissocia-
tion energy D_o of the oxides is related to the heat of sublimation ΔH_{subl}
as follows: $D_o(MeO) = \Delta H_{o\ subl}(Me) - \Delta H_{o\ subl}(MeO) \cdot \Delta H^o_{f_o}(MeO_{cryst})$

$+ \Delta H^o_{f_o}(O_{gas})$. $\Delta H^o_{f_o}$ is the heat of formation; all values are given in $^o K$.

Card 1/6

26338
3/076/61/035/007/008/019
B127/B208

Dissociation energy and sublimation...

Magnesium oxide was found to dissociate to 70%, calcium oxide to 65%. The heat of sublimation of SrO is 128 kcal/mole. The barium oxides, however, evaporate without dissociation. The sublimation heats were found to be $\triangle H_0 = 101 \pm 1.5$ kcal/mole or $D_0(BaO) = 134 \pm 3$ kcal/mole. Different types of molecules were found to be present in the beryllium oxide vapor: $(BeO)_2, (BeO)_3, (BeO)_4, (BeO)_5$ and $(BeO)_6$ and $D_0(BeO) = 106.6 \pm 3$ kcal/mole. Mg is the main constituent of vaporized magnesium oxide; the heat of evaporation of the oxide is higher than 149.4 kcal/mole for the ground state of the electrons. Table 5 gives the most reliable values of the heats of sublimation and formation of the oxides in vapor form. Ba_2O_2 and Ba_2O_3 molecules were found in vaporized barium oxide at high temperatures. Table 6 gives the partial pressures of the evaporation products of the various oxides. It may be seen from this Table that BeO evaporates into atoms, MgO to MgO at high temperatures, and to Mg at low temperatures CaO evaporates to give Ca and CaO at low temperatures, at 500-3000°K the vapor pressure of CaO is twice that of Ca.SrO. Evaporation of SrO gives only SrO at any temperature, as well as BaO. There are 6 tables and

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26 330
S/076/61/035/007/008/019
Dissociation energy and sublimation...   B127/B208

26 references: 7 Soviet-bloc and 19 non-Soviet-bloc. The three most recent references to English-language publications read as follows: Ref. 14: W. A. Chopka et. al.: J. Chem. Phys., 30, 827, 1959; Ref. 18: J. W. Otvos et. al.: J. Amer. Chem. Soc, 78, 546, 1956; Ref. 22: E. M. Bolewicz et. al.: Trans. Faraday Soc., 55, 720, 1959.

ASSOCIATION: Akademiya nauk SSSR Institut goryuchikh iskopayemykh (AS USSR, Institute of Mineral Combustibles)

SUBMITTED: October 13, 1959

Card 3/6

VEDENEYEV, Vladimir Ivanovich; GURVICH, Lev Veniaminovich; KONDRAT'YEV,
    Viktor Nikolayevich, akademik; MEDVEDEV, Vadim Andreyevich;
    FRANKEVICH, Yevgeniy Leonidovich; DRAGUNOV, E.S., red.; RYLINA,
    Yu.V., tekhn. red.

[Energies of chemical bond breaking. Ionization potentials and
electron affinity]Energii razryva khimicheskikh sviazei. Poten-
tsialy ionizatsii i sredstvo k elektronu; spravochnik. [By]V.I.
Vedeneyev i dr. Moskva, Izd-vo Akad. nauk SSSR, 1962. 215 p.
                                            (MIRA 16:2)
    (Chemical bonds) (Ionization) (Chemical affinity)

Medvedev, V.A.

PHASE I BOOK EXPLOITATION

SOV/6260

Gurvich, Lev Veniaminovich, Georgiy Akopovich Khachkuruzov, Vadim Andreyevich Medvedev, Inessa Veniaminovna Veyts, Georgiy Andreyevich Bergman, Vladimir Stepanovich Yungman, Nina Petrovna Rtishcheva, Lidiya Fedorovna Kuratova, Georgiy Nikolayevich Yurkov, Amaliya Abramovna Kane, Boris Fedorovich Yudin, Boris Isidorovich Brounshteyn, Viktor Feodoseyevich Baybuz, Valeriy Aleksandrovich Kvlividze, Yevgeniy Aleksandrovich Prozorovskiy, and Boris Aleksandrovich Vorob'yev.

Termodinamicheskiye svoystva individual'nykh veshchestv; spravochnik v dvukh tomakh. tom 1: Vychisleniye termodinamicheskikh svoystv; tom 2: Tablitsy termodinamicheskikh svoystv (Thermodynamic Properties of Individual Substances; Reference Book in Two Volumes. v. 1: Calculation of Thermodynamic Properties; v. 2: Tables of Thermodynamic Properties). 2d ed., rev. and enl. Moscow, Izd-vo AN SSSR, 1962. 1161 and 916 p. 4000 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Institut goryuchikh iskopayemykh; and Gosudarstvennyy komitet Soveta Ministrov SSSR

Card 1/5

Thermodynamic Properties (Cont.)   SOV/6260

po khimii. Institut prikladnoy khimii.

Resp. Ed.: V. P. Glushko, Academician, L. V. Gurvich, G. A. Khach-
    kuruzov, I. V. Veyts, and V. A. Medvedev; Ed. of Publishing House:
    K. P. Gurov; Tech. Ed.: V. G. Laut.

PURPOSE: This reference book may be used in scientific-research and
    experimental-design work in institutes, design offices, and
    schools of higher education, as well as for training specialists
    in chemical thermodynamics and thermal physics.

COVERAGE: Volume 1 of this work deals with methods for calculating
    thermodynamic properties and with the selection of constants re-
    quired for the calculations. Volume 2 contains tables of thermo-
    dynamic properties (reduced thermodynamic potential, entropy,
    enthalpy, and the logarithm of the dissociation or ionization
    constants of equilibrium) compiled, where data were lacking, on the
    basis of published and unpublished material from a number of Soviet
    research institutes. Thermodynamic properties for the ideal gas

Card 2/5

Thermodynamic Properties (Cont.)   SOV/6260

state are presented in table form for 335 gases, 44 liquids, and
45 solids compounded from 33 chemical elements and their isotopes,
viz.: H, D, T, He, Li, Be, B, C, N, O, F, Ne, Na, Mg, Al, Si, P,
S, Cl, Ar, K, Ca, Br, Kr, Re, Sr, Zr, I, Xe, Cs, Ba, Hg, and Pb.
Thermodynamic properties are given for the following 22 gases in
the range from room temperature to 20,000°K: H, H^+, H^-, O, O^+, H_2,
O_2^+, O_2, OH, OH^+, H_2O, N, N^+, N_2, N_2^+, NO, NO^+, C, C^+, CO, CO^+, and
e^-; for the 14 least stable gases up to 4000°K; and for the re-
maining 299 gases up to 6000°K. Virial coefficients for 34 gases
are also given up to 6000°K.

TABLE OF CONTENTS (Volume 1) [Abridged]:

Card 3/9

MEDVEDEV, V.A. (Moskva); SHMUK, Ye.I. (Moskva)

Thermodynamic calculation of germanium distribution in coal combustion products. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.3:38-40 My-Je '62.
(MIRA 15:6)
(Germanium—Thermal properties) (Coal—Analysis)

37952

S/181/62/004/005/005/050
B162/B108

14.7700

Siterman, A. Sh., Krol', L. Ya., Medvedev, V. ...
Orlova, M. ..., and Fado, S. S.

Impurity band conductivity in n-type GaAs

Fizika tverdogo tela, v. 4, no. 5, 1962, 1365-1369

TEXT: Results are given of measurements of the resistivity ρ, the Hall
coefficient R and the magnetic resistance $\frac{\Delta\rho}{\rho}$ on single crystals of
n-type GaAs with impurity concentrations of $10^{16} - 10^{17}$ cm^{-3}, at which
interaction between the impurities and formation of an impurity band not
fusing with the conduction band can be expected. The specimens were
prepared by zone melting in a horizontal boat of an ingot of chemically
pure GaAs. Analysis of the data shows that the single crystal
specimens at temperatures below 95°K display conductivity in the impurity
band. This effect is absent in the more contaminated single-crystal and
polycrystalline specimens. The Hall mobility in the conduction band

Card 1/3

Impurity band conductivity in ...   S/181/62/004/003/055/055
                                       B162/B108

is three to four times greater than in the impurity band. The magnetic
resistance of the single-crystal specimens measured in a field of 2.6 ce
becomes negative at temperatures below 20°K, and for a polycrystal
also over the whole range of 1.7° - 300°K. The conductivity in the
impurity band in n-type GaAs does not lead to a change in the sign of the
Hall effect at the lowest temperatures, as might have been expected for
holes in the impurity band.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh
               izmereniy (Institute of Physicotechnical and Radiotechnical
               Measurements), Moscow

SUBMITTED: November 16, 1961 (initially)
               February 14, 1962 (after revision)

Card 2/2

ACCESSION NR: AR4036315   8/0081/64/000/004/B049/B049

SOURCE: Referativny*y zhurnal. Khimiya, Abs. 4B363

AUTHOR: Baybuz, V. F.; Medvedev, V. A.

TITLE: Determination of the heat of formation of certain fluorochloro deri-
vatives of methane by the method of explosion in a spherical bomb

CITED SOURCE: Sb. tr. Gos. in-ta prikl. khimii, vy*p. 49, 1962, 84-112

TOPIC TAGS: methane, halomethane, fluorochloromethane, carbon tetrachloride,
carbon tetrafluoride, physical chemistry, calorimetry, bomb calorimeter

TRANSLATION: A mechanism for the loss of energy during explosions in a
spherical bomb with central ignition is suggested and proven experimentally.
A method is suggested for calculating the explosion temperature while taking
the loss of energy into consideration. The results of explosions of mix-
tures of H_2, CO, O_2, H_2O and N_2 carried out in a wide range of concentrations
show that the suggested method for calculating the explosion temperature makes
it possible to determine the heat capacity and the thermochemical values for
gases by the method of explosion in a spherical bomb with great accuracy.

Card 1/2

ACCESSION NR: AR4036315

Addition of small amounts of steam does not decrease the loss of energy during explosions of hydrogen with oxygen. The heats of formation of gaseous CF_4, CF_3Cl, $CFCl_3$, and CCl_4, respectively, were: -220.1±1.3; -166.2±2.2; -66.4±2.1; and -24.6±1.9 kkal/mole. Authors' summary

DATE ACQ: 10Apr64   SUB CODE: OC   ENCL: 00

Card 2/2

S/055/63/000/001/004/008
D251/D308

AUTHORS: Maron, V. I. and Medvedev, V. A.

TITLE: On the derivation of energy equations of interpene-
              trating motions of gaseous media

PERIODICAL: Moscow. Universitet. Vestnik. Seriya I. Matematika,
              Mekhanika, no. 1, 1963, 43-45

TEXT: One of the possible methods of studying the motion of a mix-
ture of gaseous media is to write down the equations of motion for
each component separately, and then to introduce interaction for-
ces. In order to obtain a closed system of equations, equations of
the conservation of energy must-be found. However, this method of
procedure gives an energy equation which is insufficient to account
for the effect of the other components. This article is devoted to
the deduction of a closed system of equations which describe the
motion by components of a binary mixture of perfect gases. The
energy equation of the i-th component is

Card 1/3

On the derivation ...

S/055/63/000/001/004/008
D251/D308

$$\rho_i \frac{d}{dt}\left(e_i + \frac{1}{2} w_i^2\right) = -\text{div } p_i\vec{w}_i + \text{div }\left[(\vec{p}_{ix}\vec{w}_i)\vec{i} + (\vec{p}_{iy}\vec{w}_i)\vec{j} + \right.$$

$$\left. + (p_{iz}\vec{w}_i)k\right] + \text{div }(\lambda_i\nabla T_i) + \alpha(T_j - T_i) + (\vec{F}_{ij}\vec{w}_i) + A_i.$$

$$A_i = \varkappa_i\vec{F}_{ij}(\vec{w}_j - \vec{w}_i); \quad \varkappa_1 + \varkappa_2 = 1, \ 0 \leqslant \varkappa_i \leqslant 1; \ i,j = 1,2, \quad i < j$$

where A_i is the i-th component's part of the interaction energy, $e_i = c_{vi}T_i$ is the internal energy of the i-th component, α is the coefficient of heat exchange

$$\vec{P}_{i(x,y,z)} = P_{i(x,y,z)x}\vec{i} + P_{i)x,y,z)y}\vec{j} + P_{i(x,y,z)z}\vec{k}$$

Card 2/3

On the derivation ...

where $P_{i(x,y,z)(x,y,z)}$ are the components of the viscous stress tensor for the i-th component. The equation of motion for the i-th component is

$$\rho_i \frac{d\vec{w}_i}{dt} = - \nabla P_i + \left[\vec{i}\ \text{div}\ \vec{P}_{ix} + \vec{j}\ \text{div}\ \vec{P}_{iy} + \vec{k}\ \text{div}\ \vec{P}_{iz}\right] + \vec{F}_{ij},$$

$$i;\ j = 1,2;\quad i < j$$

and these equations, together with the equation of continuity, form a closed system, provided that F_{ij} are written in explicit form, and $\varkappa_i$ and α are given.

ASSOCIATION: Kafedra gazovoy i volnovoy dinamiki (Department of Gas and Wave Dynamics)
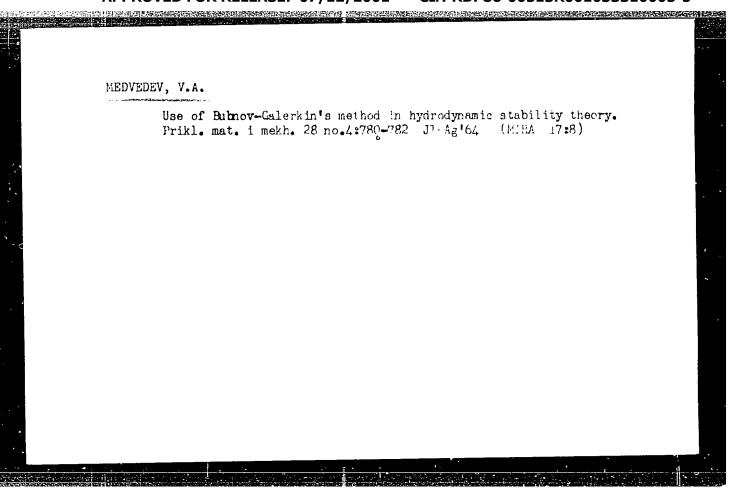
SUBMITTED: December 25, 1961

Card 3/3

MEDVEDEV, V.A. (Moskva)

Convergence of Bubnov — Galerkin's method. Prikl. mat. i mekh. 27 no.6:
1148-1151 N-D '63.   (MIRA 17:1)

L 12771-63   EWP(q)/EWT(m)/BDS   AFFTC/ASD   JD/JW

ACCESSION NR: AP3002944   S/0076/63/037/006/1403/1406

AUTHOR: Medvedev, V. A.

TITLE: Association of hydrogen fluoride in vapors and its heat of formation

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1403-1406

TOPIC TAGS: hydrogen fluoride association, hydrogen fluoride, enthalpy value, formation heat, heat of formation

ABSTRACT: One of the most important thermochemical values is the standard heat of formation of HF. The experimental results show that hydrofluoric vapors do not have cyclic molecules as previously believed, but have a considerable quantity of associated molecules (HF) sub n, where n is 1, 2, etc. Based on data of previous works which were devoted to calculating the heat capacity by graphic integration, the present calculations were made by the use of differences in the enthalpy values of the associated hydrogen fluoride at temperatures of 20 to 35 and 100C, when the hydrogen fluoride vapors consist almost entirely of monomeric molecules. Using these values and the values of enthalpy of HF as an ideal gas, the differences of enthalpy values of the ideal gas and the associated real HF gas were calculated for the above-mentioned temperatures. The obtained values permit the calculation

Card   1/2

L 12771-63
ACCESSION NR: AP3002944

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of a more precise standard heat of formation of HF. The corrected values for the association lead to the conclusion that the obtained values of heat of formation of HF vary systematically with the increase in pressure. This points to the unsatisfactory precision of the indicated corrections, since the analyses and measurements of products of reaction in previous works are quite accurate. Thus, a new measurement of heat of association of HF in vapors is needed. Such data will allow the obtaining of more precise values of heat of formation of HF and, by using the value D sub 0 (HF), a more exact value of dissocation energy of HF is possible. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 29Aug62   DATE ACQ: 16Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 002   OTHER: 009

Card 2/2

MEDVEDEV, V.A.

Use of Bubnov-Galerkin's method in hydrodynamic stability theory.
Prikl. mat. i mekh. 28 no.4:780-782 Jl-Ag'64   (MIRA 17:8)

MEDVEDEV, V.A.; YUNGMAN, V.S.; VOROB'YEV, A.F.; GURVICH, L.V.;
BERGMAN, G.A.; REZNITSKIY, L.A.; KOLESOV, V.P.;
GAL'CHENKO, G.L.; KHODEYEV, Yu.S.; KHACHKURUZOV, G.A.;
SOKOLOV, V.B.; GOROKHOV, L.N.; MONAYENKOVA, A.S.;
KOMAROVA, A.F.; VEYTS, I.V.; YURKOV, G.N.; MALENKOV, G.G.;
SMIRNOVA, N.L.; GLUSHKO, V.P., akademik, otv. red.;
MIKHAYLOV, V.V., red.; KARAPET'YANTS, M.Kh., rsi.

[Thermal constants of substances; reference book in ten
numbers] Termicheskie konstanty veshchestva; spravochnik
v desiati vypuskakh. Moskva, No.1. 1965. 144 p.
(MIRA 18:7)

1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy
informatsii.

L 06473-67   EWP(j)/EWT(l)/EWT(m)   RM/WW/JW

ACC NR: AP6029215   SOURCE CODE: UR/0076/66/040/006/1417/1420

AUTHOR: Medvedev, V. A.; Dedikov, Iu. A.; Astrov, D. N.

ORG: All-Union Scientific Research Institute of Physicotechnical and Electronic Measurements (Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy)

TITLE: Apparatus for measuring the heat capacity c_p of gases at temperatures from 20°K and higher and pressures up to 500 abs atm

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 6, 1966, 1417-1420

TOPIC TAGS: heat capacity, hydrogen, calorimeter, GAS PROPERTY

ABSTRACT: An apparatus including a constant-temperature flow calorimeter was constructed for the purpose of measuring the heat capacity of gases at temperatures from 20 to 100°K at 500 abs atm. The method on which its operation is based consists in measuring the amount of heat expended in maintaining a constant temperature in the calorimeter through which the gas being studied is flowing; the temperature of the gas at the entrance to the calorimeter is lower than that of the calorimeter. Knowing the temperature of the gas t_1 at the entrance, the amount of heat Q evolved in the calorimeter, the rise in the temperature of the gas inside the calorimeter (t_2-t_1) and the flow rate G (assumed to be constant), one can calculate the specific heat capacity c_p:

Card 1/2   UDC: 541/.545+541.11

L 06470067

ACC NR: AP6029215

where q is the heat loss of the calorimeter. The apparatus was constructed mainly in order to measure the heat capacity of hydrogen gas, but it can also be used for such gases as helium, nitrogen, oxygen, neon and argon. Experimental data on the c_p of hydrogen obtained with this apparatus indicate a 3% total error in the determination of c_p. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 28Jul65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 JML

MEDVEDEV, V. V.

Takelazhnoe delo /Rigging7. Moskva, Morskoi transport, 1954. 131 p.

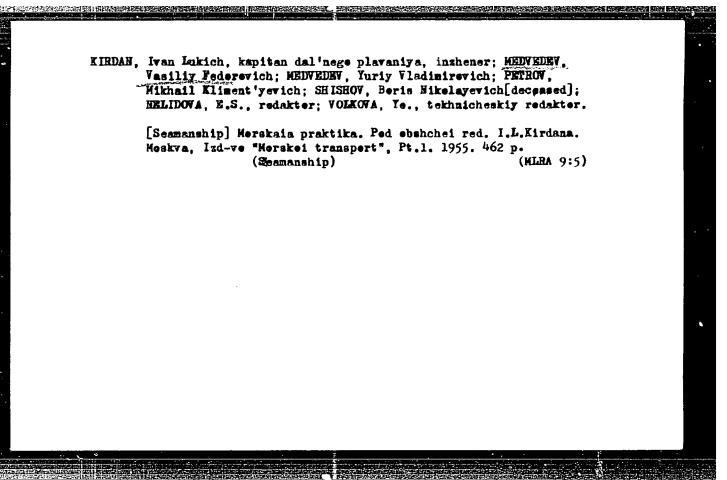DC: Monthly List of Russian Accessions, Vol. 6 No 10 January 1954

MEDVEDEV,V.I., kapitan dal'nego plavaniya; IVANOV,K.A., redaktor;
VOLKOVA,Ye., tekhnicheskiy redaktor

[Preventing ship collisions at sea] Preduprezhdenie stolknovenii
sudov v more; kommentarii. Moskva, Izd-vo "Morskoi transport,"
1955. 241 p.   (MLRA 9:3)
              (Collisions at sea)

KIRDAN, Ivan Lukich, kapitan dal'nego plavaniya, inzhener; MEDVEDEV, Vasiliy Federovich; MEDVEDEV, Yuriy Vladimirevich; PETROV, Mikhail Kliment'yevich; SHISHOV, Boris Nikelayevich[deceased]; BELIDOVA, E.S., redakter; VOLKOVA, Ye., tekhnicheskiy redakter.

[Seamanship] Merskaia praktika. Ped ebshchei red. I.L.Kirdana. Moskva, Izd-ve "Morskei transpert", Pt.1. 1955. 462 p.
        (Seamanship)   (MLRA 9:5)

MEDVEDEV, V. F., ED.

N/5
756.57
.M4

PREDUPREZHDENIYE STOLKNOVENIY SUDOV V MORE (PREVENTING COLLISIONS OF SHIPS AT SEA) MOSKVA, "MORSKOY TRANSPORT ", 1956.

241 P. ILLUS., DIAGRS,, MAP, TABLES.

"LITERATURA": P. (187)

MEDVEDEV, V.F.

SACHKOVSKIY, Georgiy Semenovich; MEDVEDEV, V.F., redaktor; FEDOROV, V.P.,
redaktor izdatel'stva; LAVRENOVA, N.B., tekhnicheskiy redaktor.

[Theory and practice of sailing] Teoriia i praktika upravleniia
shliupkoi. Moskva, Izd-vo "Morskoi transport," 1957. 147 p.
(MIRA 10:11)

(Sailing)

BOCHEK, Aleksandr Pavlovich; GRIGOR'YEV, Vissarion Vissarionovich;
DUBININ, Aleksandr Iosifovich; MEDVEDEV, Vasiliy Fedorovich;
PETROV, Mikhail Kliment'yevich [deceased]; YANKOVICH, Vladimir
Nikolayevich; PETIN, M.I., red.; TIKHONOVA, Ye.A., tekhn.red.

[Marine practice] Morskaia praktika. Pod obshchei red.V.N.
IAnkovicha. Moskva, Izd-vo "Morskoi transport." Pt.2. 1959.
418 p.   (MIRA 13:1)
                        (Navigation)

MEDVEDEV, Vitaliy Fedosovich, kand. ekonom. nauk; IVANOV, V., red.;
        KALECHITS, G., tekhn. red.

    [Specialization in agricultural production; as exemplified in
    Brest Province] Spetsializatsiia v sel'skokhoziaistvennom pro-
    izvodstve; na primere Bretskoi oblasti. Minsk, Gos.izd-vo
    BSSR. Red.sel'khoz.lit-ry, 1961. 191 p.   (MIRA 14:12)
                        (Brest Province--Agriculture)

MEDVEDEV, Vitaliy Fedosovich[Miadzvedzeu, V.F.], kand.ekon. nauk;
       TARKAYLA, I., red.; DZIK, V., tekhn. red.

[Intensification as a way of developing agriculture]Intensifi-
katsyia - shliakh razvitstsia sel'skai haspadarki. Minsk,
Dziarzh.vyd-va sel's'kahaspadarchai lit-ry BSSR, 1962. 43 p.
                                        (MIRA 15:12)
       (White Russia--Agriculture--Economic aspects)

MEDVEDEV, V.G.

Livestock Exhibitions

Animal husbandry at the Zaporozh'ye Province Livestock Exhibition. Sots. Zhiv., 14, No. 3, 1952.

<u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, June 1952.   Unclassified.

BOBROVSKAYA, I.K.; BYKHOVSKIY, YA.L.; YEGOROV, K.P.;
KLEBANOV, B.S ; MEDVEDEV, VI.I.; MYAKOCHINA, N.G.

Electric Lines

Long distance, high frequency communication over electric transmission lines.
Elektrichestvo No. 7, 1952.

MEDVEDEV, V. I.

Medvedev, V. I. [Fizicheskiy institut imeni P.N. Lebedeva AN SSSR /1/ Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Physics Institute imeni P.N. Lebedev AS USSR/and/ Moscow State University imeni M.V. Lomonosov)] The Radio-interference Method of Investigating Changes in the Dielectric Constant

(The Physics of ... ...
of Dielectrics ... ...

This ... ...
Dielectrics, held ... ...
Dielectrics Laboratory of the ... ...
Institute ... ... AS USSR), ...
... ... (Comp. ... ...

108-1-9/10

AUTHOR: Medvedev, V. I.

TITLE: The Approximate Computation of the Input Resistance of a
            Triple Loopshaped Semiwave Dipole With Different Element
            Cross Sections (K priblizhennomu raschětu vkhodnogo
            soprotivleniya troynogo petleobraznogo poluvolnovogo
            dipolya s raznymi secheniyami elementov)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 1, pp. 80-80 (USSR)

ABSTRACT: This is an abstract by the author. At present triple
            loopshaped dipoles are often used in reception- and trans-
            mission antennae. For this at least approximately the
            magnitude of the input resistance is required. According
            to the method of "Sync-phase Generators" using the theory
            of long lines the mentioned formula for the input resistance
            of the triple loopshaped dipole is deduced. The dipole
            consists of an active and two possive elements. The
            formula is a generalization of that for the input resistance
            of a double loopshaped dipole (ref. 1). The formula for the
            input resistance at the feeding point of the triple
            loopshaped dipole is put down (1). If the third conductor

Card 1/2

The Approximate Computation of the Input Resistance of a   108-1-9/10
Triple Loopshaped Semiwave Dipole With Different Element Cross
Sections

is missing, the equation (1) transforms into the known
formula for the input resistance of a double loopshaped
dipole. The experimental checking of this formula was car-
ried out at a frequency of 80 megacycles for the case
of a triple dipole with identical passive elements at a
distance of 30 mm from the effective vibrator. The results
of the experiment coincide with those of the calculation
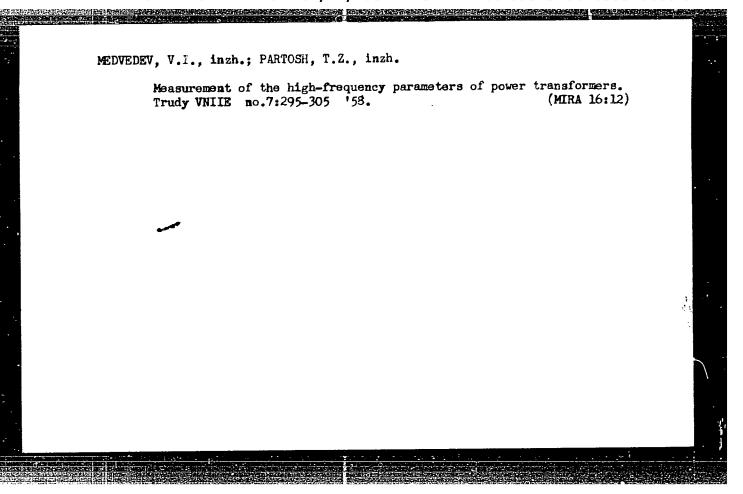allowing a measuring error of 5 %.
There are 1 figure, and 1 **English reference**

AVAILABLE: Library of Congress

Card 2/2   1. Dipole antennas-Mathematical analysis

MEDVEDEV, V.I., inzh.; PARTOSH, T.Z., inzh.

Measurement of the high-frequency parameters of power transformers.
Trudy VNIIE no.7:295-305 '58.   (MIRA 16:12)

S/155/59/000/02/029/036

AUTHORS: Medvedev, V.I., Sorokin, A.S.

TITLE: Single-Channel Phasemeter With Multiplication of the Frequency

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1959, No. 2, pp. 151-157

TEXT: The authors describe a single-channel phasemeter which results by development from the two-channel phasemeter proposed in (Ref. 6). An experimental examination of the instrument shows that it is practically insensitive against variations of the external temperature, of the feeding voltages, of the generator frequency and with respect to the microphonic effect. A further advantage of the single-channel instrument compared with the two-channel one is the possibility to carry out visual observations and recording of the results of measurement during a practically unbounded time.
The authors thank Professor V.V. Migulin and M.D. Karasev for valuable advices.
There are 6 figures, and 10 references : 9 Soviet and 1 English.
ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)
SUBMITTED: March 30, 1959

Card 1/1

AUTHOR: Medvedev, V.I.   S/055/59/000/04/012/026
                                                       B014/B005

TITLE: A Half-wave Circular Signal Antenna of Three Dipoles (Ultrashort-
               wave Antenna System With Uniform Horizontal Circular Directivity
               Diagram)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki,
               astronomii, fiziki, khimii, 1959, Nr 4, pp 117-122 (USSR) V 14

ABSTRACT: The threefold loop-shaped dipole shown in figure 1 has a structure
               similar to the twofold loop-shaped dipole by A.A. Pistol'kors
               (Ref 3). The active element is the central dipole, the passive
               elements being the upper and lower ones. The advantages over the
               twofold loop-shaped dipole consist in a more uniform emission,
               safer operation at varying temperatures (explained by the use of a
               condenser with air as a dielectric medium), a much higher input
               impedance (180 ohms), and the possibility of changing the latter
               within a certain range. Formula (2) is indicated for estimating the
               input impedance. Finally, the author thanks A.B. Melik'yan,
               Scientific Collaborator of the FIAN, for his valuable advice and
               assistance. There are 4 figures and 9 references, 7 of which are
               Soviet.
Card 1/2

A Half-wave Circular Signal Antenna of Three Dipoles   S/055/59/000/04/0 12/026
(Ultrashort-wave Antenna System With Uniform   B014/B005
Horizontal Circular Directivity Diagram)

ASSOCIATION: Kafedra kolebaniy (Chair of Oscillations)

SUBMITTED: March 18, 1959

Card 2/2

69785

9.9000

AUTHOR: Medvedev, V. I.

TITLE: On the Problem of the Radio Interference Method of Measuring Short
             Periods of Time by Means of Frequency Multiplication

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki,
             astronomii, fiziki, khimii, 1959, No. 6, pp. 112 - 119

TEXT: In view of the great importance of the phase method for measuring short
periods of time in the investigation of the propagation and the measurement of
the velocity of propagation of electromagnetic waves in radiogeodesy, radio-
navigation, fluorometry, and many other fields of experimental physics, the
present paper discusses some problems of phase measurement, and the separation
of harmonics, by means of phasometers with frequency multiplication. In prin-
ciple, the method is based on the fact that it is possible to measure short
periods of time by a phasometer (resolution of the indicator $\Delta\varphi_{min}$) with multi-
plication of the frequency ω_o to the n-fold according to the equation $\Delta t_{min} =$
$= \Delta\varphi_{min}/n\omega_o$. Systems with inertiafree indicators (beam tubes) are considered

Card 1/3

69785

On the Problem of the Radio Interference Method of   S/055/59/000/06/11/027
Measuring Short Periods of Time by Means of   B006/B005
Frequency Multiplication

here. n may lie between a few units up to some thousands. The resolution limit
of such a system is a consequence of various parasitic "technical" phase devia-
tions $\Delta\varphi_{par}$ which lead to a certain instability of the circuit parameters. Al-
ready at n = 1 - 20 during the measurement, the phase instability of the appara-
tus which is multiplied together with the measured phase shift may become greater
than the resolution $(n\Delta\varphi_{par} > \Delta\varphi_{min})$. Particular difficulties will arise if $\Delta\varphi_{meas}$
changes during the experiment. Methods of reducing $\Delta\varphi_{par}$ have already been de-
veloped; they are insufficient, however, for large n-values. A considerable re-
duction of the frequency phase errors of two-channel phasometers with stage multi-
plication is achioved by the use of double heterodynation (Ref. 12). A further
reduction of the times to be measured Δt_{meas} $(10^{-10} - 10^{-12}$ sec) requires new
methods of reducing $\Delta\varphi_{par}$. The author discusses several methods which permit an
improvement of the phase stability of phasometers for given tube characteristics,
types of details, amplification- and multiplication circuits, or which permit the
measurement of small $\Delta\varphi_{meas}$ on the background of large $\Delta\varphi_{par}$. A method of

Card 2/3

69785

On the Problem of the Radio Interference Method of
Measuring Short Periods of Time by Means of
Frequency Multiplication

S/055/59/000/06/11/027
B006/B005

separating the upper harmonic in the first stage of the multiplier is described
at first. Fig. 1 shows the block diagram of a two-channel pharometer with separa-
tion of the upper harmonic in the first stage of the multiplying system (cf.
Zhabotinskiy and Sverchkov, Ref. 13). Subsequently, the author discusses a meth-
od which is based on the use of a two-channel phasometer with signal commutation
in one channel while the two signals are out of phase. Fig. 2 shows the block
diagram of such an apparatus. Finally, a one-channel phasometer with commutation
of the signals which are out of phase is described (Fig. 4); this phasometer may
be used for time measurements between 5.10^{-8} and 5.10^{-10} sec. In conclusion, the
author thanks Professor V. V. Migulin and Docent M. D. Karasev for discussions
and advice. There are 5 figures and 14 references, 12 of which are Soviet.

ASSOCIATION: Kafedra teorii kolebaniy (Chair of Oscillation Theory)

SUBMITTED: March 23, 1959

Card 3/3

83428

S/188/60/000/001/002/010
B019/B056

6.9400

AUTHORS: Medvedev, V. I., Loskutov, B. P.

TITLE: The Effect of Fluctuations in a Two-channel Phase Indicator
             With Frequency Multipliers[2]

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika,
             astronomiya, 1960, No. 1, pp. 27-38

TEXT: In the introduction, the authors discuss applications of the phase-
measuring methods of electrical and nonelectrical quantities, suggested
by Academicians L. I. Mandel'shtam and N. D. Papaleksi. In the present
paper, the authors calculate the conversion of a signal with noise in a
system consisting of a nonlinear four-pole (frequency doubler) with a
quadratic characteristic of the form $y = a_0 + a_1 x + a_2 x^2$ and a linear
element (filter) with the transmission function $C(\omega)$, using the theory
of random processes. Formula (7) is derived for the spectral density of
the average power of the random processes at the output of the frequency
doubler, and relation (13) for the signal-to-noise ratio at the output of

Card 1/3

83428

The Effect of Fluctuations in a Two-channel   S/188/60/000/001/002/010
Phase Indicator With Frequency Multipliers   B019/B056

the frequency doubler is set up as a function of the noise-to-signal
ratio at the input of the doubler. In the diagram of Fig. 1, the results
of a calculation carried out in accordance with (13) are graphically
represented for various ratios between the transmission bands of the
input and output circuits of the doubler. Experimental investigations of
the distribution of noise voltage at the output of a multiplier channel
consisting of one, two, or three frequency doublers showed that the non-
linear conversion of a normal narrow-band noise led to an increase in the
excess of the curve, the excess coefficient being doubled when the number
of successive doublers was increased. The authors experimentally determined
the phase error caused by noise in a two-channel phase indicator with
frequency multipliers as a function of the noise-to-signal ratio at its
input. The character of this function was found to be linear, and it was
shown that the phase error due to noise is increased with an increase of
the signal frequency. Further, the law of the increase in the phase error
was found to be the same for all phase differences measured from 0 to π .
There are 12 figures and 15 references: 14 Soviet and 1 British.

Card 2/3

83428

The Effect of Fluctuations in a Two-channel
Phase Indicator With Frequency Multipliers

S/188/60/000/001/002/010
B019/B056

ASSOCIATION: Kafedra teorii kolebaniy (Chair of the Theory of
Oscillations)

SUBMITTED: May 14, 1959

UX

Card 3/3

Medvedev, V. I.

9.6000

81991

S/120/60/000/03/024/055
E041/E521

AUTHOR: Medvedev, V. I.

TITLE: Single-Channel Phasemeter with Frequency Multiplication

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3, pp 90-91

ABSTRACT: Two-channel phasemeters using frequency multiplication suffer from poor angular resolution when the multiplication factor is high. The author has already proposed a single-channel switching method (Ref 6). It was found, however, that the observation of the Lissajous figures on the screen of the CRT indicator was difficult since the patterns were always moving. These objections are overcome in the instrument whose circuit diagram is in Fig 1. An amplifier and multiplier are switched successively between the signal and a phase-shifted version of it. The latter is applied to one pair of plates on a CRT while the former is used to synchronize an oscillator whose output is applied to the other pair of plates. The oscillator frequency is close to that of the original signal. The possibility of using a synchronization

Card 1/2

pa   81991

S/120/60/000/03/024/055
E041/E521

Single-Channel Phasemeter with Frequency Multiplication

     phenomenon to measure phase derives from a relation
pointed out by Voronin and Berestovskiy (Ref 7). The
arrangement shown has operated at an input frequency of
5 Mc/s with a multiplying factor of 4. The sampling time
for the two versions of the signal is 10^{-4} seconds. The
pulses are production by three triggers driven from a
3G-2A oscillator. Two triggers operate the input and output
switches while the third applies blanking pulses to the
CRT. An investigation of the stability of the circuit
showed that over a period of 5 hours it was equivalent to
a relative frequency change of $< 3 \cdot 10^{-14}$. Parasitic
phase changes due to dynamic temperature-change effects
and supply-voltage fluctuations constitute only 5% of the
minimum detectable phase change. The instrument has been
used to make extended observations of small delays

Card 2/2 $(\sim 5 \cdot 10^{-8}$ seconds) very satisfactory. There are 1 figure
and 7 references, 6 of which are Soviet and 1 English.
ASSOCIATION: Fizicheskiy fakul'tet MGU (Physics Department, Moscow
    State University)
SUBMITTED: April 2, 1959

S/588/61/000/004/010/011
D234/D303

9.7140

AUTHORS: Smirnov, Yu.M., and Medvedev, V.I.

TITLE: Stabilizing the velocity of rotation of magnetic
             recording disc of a storage device

SOURCE: Avtomaticheskoye upravleniye i vychislitel'naya
             tekhnika, no. 4, Moscow 1961, 339 - 354

TEXT: The authors describe an electric motor with highly stable
instantaneous velocity of rotation and discuss several factors
which, in their opinion, are decisive from the point of view of sta-
bility. The admissible values of deviations of the parameters and
characteristics were determined from the condition that the stabi-
lity of rotation should be obtained with an accuracy up to 10^{-5}.
The effect of fluctuations of the supply voltage, of the displ.ce-
ment of the center of gravity of rotating parts with respect to the
axis of rotation, of an eccentric position of the rotor with re-
spect to the stator are studied in detail. In the last chapter a
description is given of the methods of experimental measurements of

Card 1/2

Stabilizing the velocity of ...   S/588/61/000/004/010/011
D234/D303

the velocity of rotation, carried out by the authors. It is stated
that the motor described in the paper was found to secure the sta-
bility of rotation, with fluctuations of the order of 2.5×10^{-5}.
There are 11 figures.

Card

ACCESSION NR: AP4005401   S/0188/63/000/006/0077/0084

AUTHOR: Medvedev, V. I.

TITLE: Investigation of the phase measurement method as applied to incoherent signals

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6, 1963, 77-84

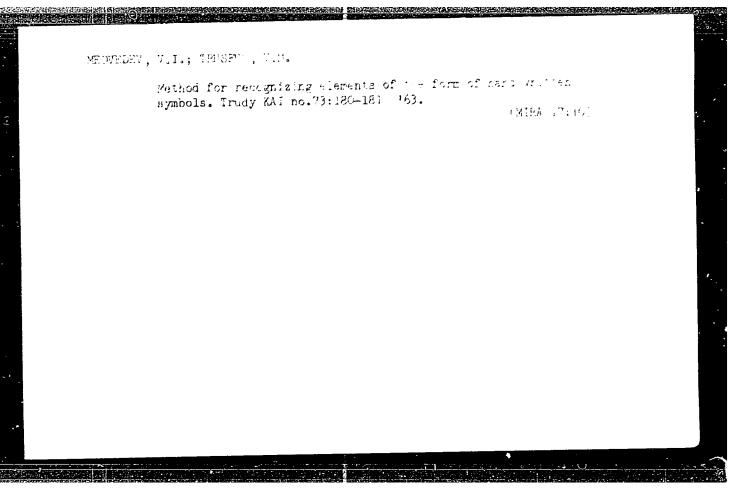TOPIC TAGS: phase measurement, incoherent signal, radiointerference measurement, radio interference

ABSTRACT: The phase measurement (radio interference) method originally suggested by Academicians L. I. Mandel'shtam and N. D. Papaleksi is becoming more and more widely used in experimental physics but is limited by the requirement that the 2 signals be coherent so that the parasitic phase shift measured during the time of observation $(\Delta\omega\Delta t_m)$ is always less than the measured phase difference $(\Delta\varphi_m)$. In order to eliminate the need for synchronization and the difficulty which arises when coherent signals become incoherent during passage through the various components of the apparatus, with their differing parameters, the author therefore developed a stroboscopic method for measuring changes in the phase difference which requires only that the input frequencies be stable. This method is based on

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ACCESSION NR: AP4005401

the periodic repetition of an interference pattern on the screen of the cathode ray oscilloscope with a period $T = 2\pi/(\omega_1-\omega_2)$, so that a stable interference pattern can be measured by switching the oscilloscope on and off at the same frequency. A superimposed phase shift in one of the signals will then be revealed by a measurable shift in the interference pattern, the second signal serving as a reference point. The method requires only that the duration of a single observation be short enough so that $\Delta\omega t$ is less than $\Delta\varphi_e$ min (the resolving capacity of the oscilloscope). The maximal phase shift which can be measured is then determined by $\Delta\varphi_e$ min/Υmin where Υmin is the minimal time required for an observation. These theoretical considerations were then verified experimentally using two GSS-6 generators and an IO-4 oscilloscope in the arrangement shown in Fig. 1 of the Enclosure. A linear relationship was obtained between $\Delta\varphi_e$min and the phase differential for differentials of 100-5000 cycles/second and a constant Υ of 20 μsec. The relationship between $\Delta\varphi_e$min and Υ at phase differentials of 425, 1005 and 3650 cycles/second is shown in Fig. 2 of the Enclosure. Satisfactory agreement was obtained between measured and theoretical values of $\Delta\varphi$. The author concludes that the phase measurement method can be applied to incoherent signals using a stroboscopic technique, and may be of value in the study of electromagnetic wave propagation. "The author wishes to thank Prof. V. V. Migulin for fruitful discussion of the results, and B. A. Burdin for assisting in the experiments."

Card 2/2   Dept. of Wave Theory, Moscow State Univ.

MEDVEDEV, V.I.; TRUSOV, V.N.

Method for recognizing elements of the form of hand written
symbols. Trudy KAI no.73:180-181 '63.

(MIRA 17:10)

MEDVEDEV, V.I., inzh.

Automation of long-distance communication in electric power systems.
Trudy VNIIE no.12:63-73 '61.   (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektroenergetiki.

MEDVEDEV, V.I.

Modification of aural, tactile and vibratory sensitivity in dark
adaptation of the eye. Fiziol.zh.SSSR 37 No.1:35-40 Jan-Feb 51.

(CLML 20:8)

1. Department of Physiology of the Military Medical Academy imeni
S.M. Kirov.

ZIMKIN, N.V.; KAPLAN, A.Ye.; MEDVEDEV, V.I.

Change in the viscosity of saliva in dogs following disorders
of the functional state of the central nervous system. Fiziol.
zhur.41 no.4:538-546 Jl-Ag '55.   (MLRA 8:10)

1. Kafedra fiziologii Voyenno-meditsinskoy akademii im. S.M.
Kirova i Institut evolyutsionnoy fiziologii i patologii vysshey
nervnoy deyatel'nosti im. I.P.Pavlova, Leningrad.
      (SALIVA,
         viscosity, eff. of alcohol & strychnine in dogs)
      (ALCOHOL, ETHYL, effects,
         on saliva viscosity)
      (STRYCHNINE, effect,
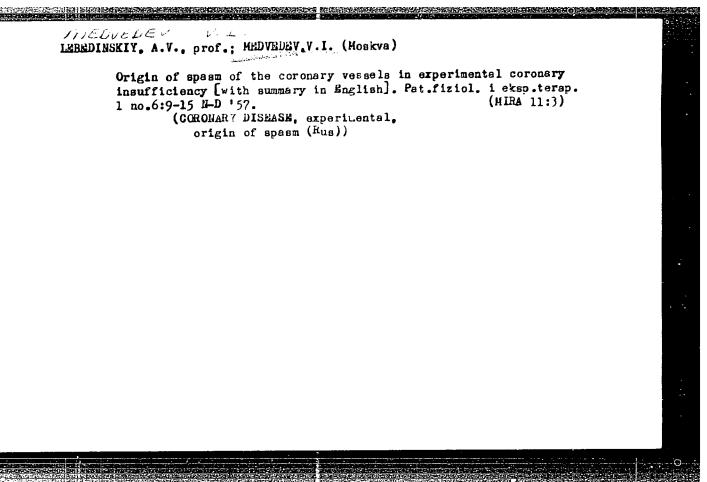   on saliva viscosity)

Medvedev, V.I

GALANIN, N.F., polkovnik meditsinskoy sluzhby, professor; POLYAK, B.L.,
polkovnik meditsinskoy sluzhby, professor; VOLKOV, V.V., kandidat
meditsinskikh nauk; KRICHAGIN, V.I., kandidat meditsinskikh nauk;
MEDVEDEV, V.I., kandidat meditsinskikh nauk

Working conditions of radar operators and possible means of preventing
general and visual fatigue. Voen.-med.zhur. no.9:28-32 S '56.
(MLRA 10;3)

1. Chlen-korrespondnet AMN SSSR (for Galanin)
(ELECTRICITY--PHYSIOLOGICAL EFFECT)
(RADAR--HYGIENIC ASPECTS)
(EYE--CARE AND HYGIENE)

MEDVEDEV V. I.

LEBEDINSKIY, A.V., prof.; MEDVEDEV,V.I. (Moskva)

Origin of spasm of the coronary vessels in experimental coronary insufficiency [with summary in English]. Pat.fiziol. i eksp.terap. 1 no.6:9-15 N-D '57.   (MIRA 11:3)
         (CORONARY DISEASE, experimental,
            origin of spasm (Rus))

USSR / General Problems of Pathology. Allergies.   U-3

Abs Jˇur   : Ref Zhur - Biol., No. 10, 1958, No 46717

Author   : Medvedev, V. I.; Shaposhnikov, O. K.
Inst   : Not given
Title   : Determination of Small Quantities of Histamine in Biolo-
              gical Fluids in Allergic Skin Reactions.

Orig Pub   : Byul. eksperim. biol. i meditsiny, 1957, 44, No 9,
              124-125.

Abstract   : The dialyzate (D) of skin sections of healthy people and
              of patients with hives was obtained by the following
              method: a glass jar which fitted a 10.33 cm^2 skin surface,
              was filled with 6 ml. of physiological solution, and
              sucked off after 30 minutes. D from fresh urticaria erup-
              tions augmented the blood flow in the vessels of the dog's
              kidneys and did not change the general blood pressure. A
              similar effect was produced by a solution which contained
              histamine diluted in the proportion of up to 1 : 10^{-7}.

Card 1/1

MEDVEDEV, V.I.; SAVINA, L.N.; SUKHANOVA, N.V.

Physiological analysis of the vibration of vocal folds (with refe-
rence to Husson's theory). Probl.fiziol.akust. 4:208-215 '59.

(MIRA 13:5)

1. Institut evolyutsioony fiziologii imeni I.M. Sechenova AN SSSR,
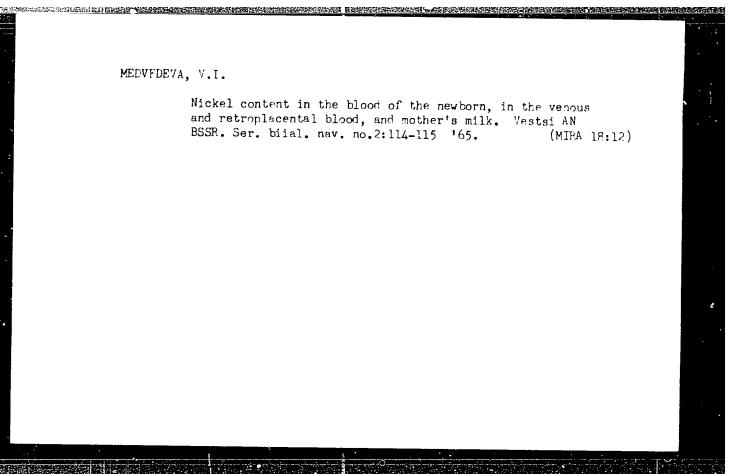Leningrad.

(VOICE)

KURTSIN, I.T.; MEDVEDEV, V.I.

Reaction of the vessels of the greater and lesser curvature of the stomach to various stimulants. Trudy Inst. fiziol. 9:95-100 '60.

(MIRA 14:3)

1. Laboratoriya kortiko-visterseral'noy patologii i Kafedra normal'noy fiziologii Voyenno-meditsinskoy ordena Lenina akademii im.S.M.Kirova (zaveduyushchiy laboratoriyey i nachal'nik kafedry - I.T.Kurtsin).
(STOMACH—BLOOD SUPPLY)   (DIGESTION)

MEDVFDEVA, V.I.

Nickel content in the blood of the newborn, in the venous
and retroplacental blood, and mother's milk. Vestsi AN
BSSR. Ser. biial. nav. no.2:114-115 '65. (MIRA 18:12)

KOKURIN, V.V.; MEDVEDEV, V.I.

Patriotic initiative of assistant foreman M.V.Kulikova in operation.
Tekst.prom. no.2:1-3 F '63.   (MIRA 16:4)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela Ivanovskogo
soveta narodnogo khozyaystva (for Kokurin). 2. Zamestitel' nachal'nika
TSentral'nogo byuro tekhnicheskoy informatsii Ivanovskogo soveta narodnogo
khozyaystva (for Medvedev).
        (Textile industry)   (Efficiency, Industrial)

KOKORIN, K.V.; KOKURIN, V.V.; MEDVEDEV, V.I.

Ways to achieve a further upswing of the textile industry. Tekst.
prom. 22 no.8:5-8 Ag '62.   (MIRA 15:8)

1. Zamestitel' predsedatelya Ivanovskogo soveta narodnogo khozyaystva
(for Kokorin). 2. Nachal'nik proizvodstvenno-tekhnicheskogo otdela
Ivanovskogo soveta narodnogo khozyaystva (for Kokurin). 3. Zamestitel'
nachal'nika TSentral'nogo byuro tekhnicheskoy informatsii Ivanovskogo
soveta narodnogo khozyaystva (for Medvedev).
                        (Textile industry)

MEDVEDEV, V.I.

Replacing flanged joints with welded joints on air ducts. Rats. i
izobr. predl. v stroi. no.3:108-109 '57.   (MIRA 11:1)
                        (Air pipes—Welding)

ALEKSEYEV, Yu.G.; MEDVEDEV, V.I.

New method of lining carbon disulfide furnaces. Khim.volok.
no.3:69 '59.   (MIRA 12:11)

1. Krasnoyarskiy zavod.
          (Carbon disulfide) (Furnaces)

GENKIN, A.A.; MEDVEDEV, V.I.; SHEK, M.P.

Some principles for the development of correcting tables to be used for the evaluation of the information processing rate. Vop. psikhol. 9 no.1: 104-110 Ja-F '63.   (MIRA 16:4)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni S.M.Kirova, Leningrad.

(Information theory in psychology)

L 05235-67   EWP(k)/EWT(d)/T/EWP(l)   IJP(c)   GG/BB/JXT(BF)

ACC NR: AR6017095   SOURCE CODE: UR/0372/65/000/012/G012/G012

AUTHOR: Trusfus, V. M.; Medvedev, V. L.

TITLE: Machine recognition of handwritten numbers

SOURCE: Ref zh. Kibernetika, Abs. 12G74

REF SOURCE: Tr. Kazansk. aviats. in-ta, typ. 85, 1964, 80-86

TOPIC TAGS: semiconductor triode, character recognition, pattern recognition / P13 type semiconductor triode

ABSTRACT: A method of recognition of handwritten digits according to elements of shape is described. The sign of the first derivative of a number element is taken as the principal distinguishing feature. The breakdown of a number into elements and the determination of the signs of the first derivative are accomplished with the aid of an electron-optical device moving the image of the number in front of a stack of photocells. The received information is automatically compared with the standard and the number is determined. A block diagram of the device and the levels of the algebra of logic describing the logic elements of the system are presented. When a P13 type semiconductor triode is used in the logic circuits, the electronic

UDC: 62.506:621.391.193

Card   1/2

L 05235-67

ACC NR: AR6017095

part of the device assures a readout rate of 35,000 digit signs per sec. 3 illustrations.
Bibliography of 6 titles. V. M. [Translation of abstract]

SUB CODE: 09, 12, 17/

Card 2/2

MEDVEDEV, Vasiliy Konstantinovich; NIKOLAYEV, N., red.; GOLKIN, A.,
        tekhn. red.

    [Drastic change; from the history of agricultural col-
    lectivization in the lower Volga Valley]Krutoi povorot; iz
    istorii kollektivizatsii sel'skogo khoziaistva Nizhnego Po-
    volozh'ia. Saratov, Saratovskoe knizhnoe izd-vo, 1961. 160 p.
                                            (MIRA 15:8)

        (Volga Valley--Collective farms)

M E d v e d e v, V K.

136-1-6/20

AUTHORS: Babadshan, A. A., Aglitskiy, V. A., Drobchenko, A. T.,
Garenskikh, A. D., Bulatov, V. D., Kondrashov, D. P..
Medvedev, V. K. and Milyayev, V. L.

TITLE: Treatment of Polymetallic Sulphide Concentrates in a
Converter by Pyrometallurgical Section (Pererabotka
polimetallicheskikh sul'fidnykh kontsentratov v
konvertere metodom pirometallurgicheskoy selektsii)

ABSTRACT: The method described for the treatment of copper-zinc
and copper-lead beneficiation products depended on the blowing
of these in a converter with a carbon-air mixture after
preliminary oxidation. The method was adopted at the Kirov-
grad Works after tests in which the following participated;
L. N. Leonov, K. L. Demyak, L. M. Kabanov, Sh. G. Bolgoshin,
P. I. Dochello, G. I. Chermnykh, F. P. Kulenko, N. P. Savchenko,
K. Ya. Shreyber, and M. D. Galimov at the Kirovgrad Works and
P. S. Vlasov, M. S. Khamylov, I. S. Reunov, and others at the
Karabashskiy Copper Smelting works (Karabashskiy medenlav-
il'nyy zavod). After briefly mentioning preliminary experi-
ments in 16- and 40-ton converters, the article goes on to
describe the characteristics of the materials used. These
consisted fo a wide variety of polymetallic materials with a

136-1-6-20

Treatment of Polymetallic Sulphide Concentrates in a Converter by
Pyrometallurgical Selection.

copper and zinc content of - 25% and a sulphur content of
over 30%. Difficulties with coal injection were encountered
in tests and care had to be exerciseed in balancing concentrate
feed rate with the blowing rate. During the first (Melting)
stage, the gas is rich in sulphur trioxide, which is neutral-
ised in the second (oxidation) stage by the zinc dust evolved;
for thethird (reducing) stage, a bath temperature of 1 350 -
1 450 °C is recommended. The article discusses the character-
istics of the stages and shows contents of sulphur and zinc
against time (Figs. 1, 2 and 3). From a joint study of the
full-scale process by the Unipromed' Institute and the
Kirovgrad Works, the following were among the main conclusions
drawn: The method is practicable for the treatment of copper-
zinc and copper-lead-zinc sulphide concentrates to give a dust
containing zinc, lead and rare metals; the ratio of previously
charged liquid matte to concentrate is 1:2.5-3.0; coal con-
sumption in the reducing period does not exceed 20% of the
concentrate weight; melt temperatures should be 1 150 - 1 250 °C
in State I, 1 200 - 1 400 in II and 1 350 - 1 450 °C in III;
complete oxidation is neither practicable nor desirable; the

136-1-6/20

Treatment of Polymetallic Sulphide Concentrates in a C: _verter by
Pyrometallurgical Selection

air-coal ratio shoud be such as to give 40% CO_2 and 60% CO

in the gas phase; copper contents in the ferruginous slag
are 1. 5-3%, hence the slag is treated further; 80% of the
zinc is trapped in the dust; 80% of the copper is in the crude
copper (98.0-98.5% Cu, 0.07% Ni, $ 0.004-0.02% Sb, 0.002-0.004%
Bi; crude dust yield is 11% of the concentrate weight.
The present form of the plant layout is shown (Fig. 4) and
the economic advantages of the process for Kirovgrad-region
ores are said to have beeen confirmed by calcualtions by the
Giprotsvetment and Unipromed organisations.
There are 4 figures and 7 references, of which 6 are Russian
and 1 English.

ASSOCIALTIONS: Unipromed' and Kirovgrad Copper Smelting Woeks
(Kirovgradskiy medeplavil'nꭓ nyy zavod)

AVAILABLE: Library of Congress

SOV/136-58-8-17/27

AUTHORS: Medvedev, V.K., Artemov, V.A. and Selivanov, I.A.

TITLE: Improvement of the Thermal Condition of the Reverberatory
Furnace at the Kirovgrad Copper-Smelting Kombinat
(Uluchsheniye teplovogo rezhima otrazhatel'noy pechi
Kirovgradskogo medeplavil'nogo kombinata).

ABSTRACT: A group of workers at the Kirovgrad Copper-smelting Kombinat
proposed an improved burner construction for the reverber-
atory furnace. The old burners (Fig.1) ("Copper Queen",
medium pressure) had a central fuel oil pipe and an
annular air pipe (air at 150-200 mm Hg gauge).   The new
burner (Fig.2) has a further annulus fed with converter
air (at 0.8-1 atm. gauge) to improve atomization and
combustion.   The addition of high-pressure air should have
reduced drop size, according to Prof. Selivanov's cal-
culations.   Preliminary tests showed that the flame
length (8.5 m) was within the optimal value recommended by
I.D. Semkin and M.D. Shabli.   Operating results have shown
Card 1/2   a fuel saving of 0.00396 tons/ton of charge.

SOV/136-58-8-17/27

Improvement of the Thermal Condition of the Reverberatory Furnace
at the Kirovgrad Copper-Smelting Kombinat

The fuel feed rate is 2.5-3.2 tons/hour, the converter-
air flow being 36 nm^3/min.   There are 2 figures.

ASSOCIATION: Kirovgradskiy med'kombinat (Kirovgrad Copper-Smelting
Kombinat).

1. Furnaces--Design   2. Furnaces--Equipment   3. Furnaces--Performance

Card 2/2

SOV/136-59-4-7/24

AUTHORS: Babadzhan, A.A., Bulatov, V.D., Vetrenko, Ye.A.,
Komlev, G.A. and Medvedev, V.K.

TITLE: Ways of Improving the Technology and Requirements of the
Process of Pyroselection (Puti sovershenstvovaniya
tekhnologii i trebovaniya k agregatu dlya protsessa
piroselektsii)

PERIODICAL: Tsvetnyye metally, 1959, Nr 4, pp 30-33 (USSR)

ABSTRACT: The paper reviews a lot of work carried out in the field
of pyroselection, a method of extracting easily vaporised
substances. Work has been carried out on the Kivogradskiy
and Irtyshskiy copper smelters and also in the Kamenogorskiy
lead works on the preparation of Cu- Pb- and Bi-containing
matte in a converter. According to the Altayskiy gorno-
metallurgicheskiy institute, sublimation of Pb reaches
70% and recent kinetic investigations (Ref 15,16) have
shown the high values of sublimation of Zn and Cd.
Pyroselection can result in an increase in the rate of
using raw material of 10 to 12% (Ref 9). It has been
shown that preliminary granulation of the charge is
advisable (Ref 10). The melting time was 30 to 40% of
Card 1/3   the total cycle, some heat being used in drying the charge

SOV/136-59-4-7/24

Ways of Improving the Technology and Requirements of the Process of
Pyroselection

and in the dissociation of sulphur. By preliminarily
heating the charge, production can be increased. This
can be done by heating with carbon-type fuel. The next
stage for Zn-containing matte is an oxidising blow
which quickly extracts the Zn. The ZnS is extracted by
blowing with a neutral or a reducing atmosphere, the
temperature being obtained by carbon fuel. After
extracting most of the ZnS, the remaining ZnS is removed
by oxidising to the oxide. Afterwards it is reduced to
metallic Zn. From the practical point of view, lump
coke as a fuel gives quite good results. The slag
largely consists of iron oxide. CaO can be used as a
flux, as it has a positive influence on the extraction
of volatile elements. The furnace for pyroselection
must be sealed and have an automatic continuous charger.
There must be some means for preheating the charge.

Card 2/3   Production can be increased by decreasing heat losses.

SOV/136-59-4-7/24

Ways of Improving the Technology and Requirements of the Process of
Pyroselection

       The most frequent cause of trouble is a gas leak
       between the lining and the case. There are
       26 references, 24 of which are Soviet and 2 English.

Card 3/3

GAVRILYUK, V.M. [Havryliuk, V.M.]; MEDVEDEV, V.K. [Medvediev, V.K.]

Electron emission from tungsten covered with barium in an
oxygen atmosphere. Ukr. fiz. zhur. 5 no.6:858-860 N-D '60.
(MIRA 14:3)

1. Institut fiziki AN USSR.
(Electrons--Emission) (Tungsten)

GAVRILYUK, V.M. [Havryliuk, V.M.]; MEDVEDEV, V.K. [Medvediev, V.K.]

Adsorption of carbon monoxide on tungsten. Ukr. fiz. zhur. 5
no.6:860-862 N-D '60.   (MIRA 14:3)

1. Institut fiziki AN USSR.
         (Carbon monoxide) (Tungsten) (Adsorption)

MEDVEDEV, V.K.

27962
S/185/61/006/004/004/015
D274/D303

9,3120(1138,1160,1331)

AUTHORS: Medvedyev, V.K. and Ptushyns'kyy, Yu.G.

TITLE: Electron emission of thin films of thorium oxide,
covered by an adsorbed layer of barium

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 4, 1961,
478-485

TEXT: The electron emission from thin thorium-oxide films was ex-
perimentally studied. The emission constants φ and A were measur-
ed. A cross section of the experimental lamp used, is shown in a
figure. The thorium oxide was vaporized from tungsten wire (0.3 mm
thick) covered by a thick thorium-oxide layer. Most of the thorium
oxide films consisted of 20-30 monolayers. In order to stabilize
the characteristics of the throium oxide films, they were heated
(as a rule) at $1500^\circ K$ for several minutes; such films are termed
stabilized, and the films which did not undergo such a treatment -
unstabilized. The thermionic work function was determined by Rich-

Card 1/4

Electron emission of thin films...

ardson's method (Ref. 5: K. Hering, M. Nichols, Thermoelectronic Emission, IL, 1950). The emission constants ϕ (the mean work-function) and A_o, as determined by the measurements, are given in a table according to the following types of film: I) unstabilized thorium oxide, II) stablized thorium oxide, III) thorium oxide covered by a medium layer of barium, and IV) thorium oxide covered by an optimum layer of barium. It follows from the table that the work function decreases in the order II-III-IV, reaching its minimum value of 2.4 eV for an optimum covering of barium. The constant A decreases, too. Further, the current-voltage characteristics of the systems barium-thorium oxide and barium-tungsten are compared. At sufficiently high anode-voltages, cold electron-emission of the thorium oxide films was observed. For pure, stabilized, thorium oxide films (of approximately 20 monolayers): $\phi \approx 2.8$ eV, $A \cong 160$ amp$\cdot$deg^{-2}cm^{-2}; for films covered by an optimum layer of barium: $\phi \approx 2.4$ eV, $A \cong 12$ amp$\cdot$deg^{-2}cm^{-2}. From the point of view of thermionic emission, the system barium-thorium oxide is considerably inferior to that of barium-tungsten, since the first system has a

Card 2/4

Electron emission of thin films...

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D274/D303

larger work function than the second, and the barium layer is less stable in the first system than in the second. At high voltages, the thermionic emission of barium-covered thorium-oxide films increases greatly; this becomes even more pronounced with increased temperature. This effect may be due to barium adsorption; (it is not observed on the films not covered by barium). Cold emission was observed for both pure and covered thorium oxide films. For thin films, the logarithm of the cold emission current increases linearly with voltage over a fairly wide range of anode voltages, and then approaches saturation. With barium-layers, the current-voltage characteristic of the cold emission is shifted towards lower anode-voltages; thereby the saturation current decreases. With increasing thickness of thorium oxide film, the cold emission decreases. The greatest cold-emission current-density obtained, was 0.5 microamp/cm^2. The mechanism of cold emission of thorium oxide films is perhaps in many ways analogous to the mechanism of Malter emission. There are 7 figures, 1 table and 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language

Card 3/4